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Geoscience of neutrinos, it's search in the Hades with a hypothetical supernova triangulation.

This work proposes deep underwater neutrino detection with a solid-state detector: KaiKai. Planned as a portable instrument operable in the depths, it is expected to measure geoneutrinos from the mantle up to 83% of the signal. The location of currents and futures detectors in SNEWS indicates the Pacific Ocean as an optimal location for supernova triangulation, with a maximum at $\sim 500\text{km}$ East from Easter Island. Within this optimal zone the Atacama Trench (8km depth), presents higher standards of low radiation than underground laboratories. Muons, neutrons, and reactor neutrinos are part of the noise, 3 orders of magnitude below the flux of $9,24 \cdot 10^6 \text{ cm}^{-2} \text{ s}^{-1}$ geoneutrinos. This flux computation used CRUST 1.0 and PREM models. The comparison of liquid scintillator and silicon ccd's, it's different interactions, volume, and energy observation range supports Kaikai as a solid-state detector.

Mini-abstract

The KaiKai detector: deep underwater geoscience of neutrinos plus optimal supernova triangulation.

Experiment/Collaboration

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